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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/609,190	06/27/2003	Tajul Arosh Baroky	70030981-1	7614
57299	7590	07/02/2007		
Kathy Manke Avago Technologies Limited 4380 Ziegler Road Fort Collins, CO 80525			EXAMINER ROY, SIKHA	
			ART UNIT	PAPER NUMBER
			2879	
			MAIL DATE	DELIVERY MODE
			07/02/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary**

Application No.

10/609,190

Applicant(s)

BAROKY ET AL.

Examiner

Sikha Roy

Art Unit

2879

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 05 June 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,2,4,6-11,13-23,25,32,33 and 35-38 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1,2,4,6-11,13-23,25 and 32 is/are allowed.
- 6) ☒ Claim(s) 33,35-38 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on April 19, 2007 has been entered.

In light of the amendment the objection to drawing has been withdrawn. Furthermore the 35 U.S.C. 112 second paragraph rejection of claims 1,2,4,6-11,13-23 and 25 have been withdrawn.

Claims 1,2,4,6-11,13-23,25,32,33 and 35-38 are pending in the instant application.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 33,35-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,504,301 to Lowery, and further in view of U.S. Patent 6,791,150 to Takagi.

Regarding claim 33 Lowery discloses (Fig. 2 column 4 lines 14-45, column 6 lines 20-25) a light emitting device comprising a laser diode 22 (column 1 lines 45-50, GaN based diodes are known in the art as laser diodes), a phosphor composition 52 positioned to receive light from the diode the phosphor composition is capable of absorbing blue light from the diode and emitting light at a longer wavelength.

Lowery is silent about the light emitting device comprising a driver circuit operating the laser diode in a pulse or continuous wave mode.

Takagi in same field of endeavor discloses (Fig2A column 9 lines 1-35) a driver circuit 50 which provides current  $I_m$  in a pulse mode and thus operates a laser diode 11, converting an electric signal to optical signal.

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to include a drive circuit providing current in pulse mode for operating the laser diode of Lowery as taught by Takagi for converting electric signal to optical signal for a display.

Regarding claim 35 Lowery discloses (Fig. 2 column 4 lines 31-33, column 6 lines 6-10) the light emitting device comprising a base 30, a casing wall 32 joined to the base at a first end of the casing wall and a transparent cap 52 (fluorescent plate) coated with phosphor composition joined to the casing wall at the second end.

Regarding claim 36 Lowery further discloses (column 6 lines 54-63) a lens 54 positioned adjacent to the transparent cap to direct light from the device.

Regarding claim 37, Lowery discloses the claimed invention except for the limitation of the lens being planar. It has been held that a change in shape is generally

recognized as being within the level of ordinary skill in the art. It would have been obvious to one having ordinary skill in the art to include a planar lens instead of a dome lens in the device of Lowery, since such a modification would have involve a mere change in the shape of a component.

Regarding claim 38 Lowery discloses the lens being a dome lens.

Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,504,301 to Lowery, and further in view of U.S. Patent 6,490,309 to Okazaki et al.

Regarding claim 33 Lowery discloses (Fig. 2 column 4 lines 14-45, column 6 lines 20-25) a light emitting device comprising a laser diode 22 (column 1 lines 45-50, GaN based diodes are known in the art as laser diodes), a phosphor composition 52 positioned to receive light from the diode the phosphor composition is capable of absorbing blue light from the diode and emitting light at a longer wavelength.

Lowery is silent about the light emitting device comprising a driver circuit operating the laser diode in a pulse or continuous wave mode.

Okazaki in same field of endeavor discloses (column 10 lines 19-30) a laser diode including a driving circuit so that the laser diode is operating in pulse mode. Okazaki teaches that this configuration enhances the efficiency of the wavelength conversion and thus increases the output.

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to include a driving circuit so that the diode of Lowery operates in a pulsed mode as suggested by Okazaki for enhancing the efficiency of wavelength conversion.

***Allowable Subject Matter***

Claims 1,2,4,6-11,13-23,25 and 32 are allowed over the prior art of record.

The following is an examiner's statement of reasons for allowance:

Regarding claim 1 the prior art of record neither teaches nor suggests a light emitting device having phosphor composition including first and second type of phosphor particles as claimed, the phosphor particles selected to have a  $d_{90}$  size in a range of about 30 to 45 micrometers, where  $d_{90}$  refers to a selected size at which 90 volume percent of the particles are smaller than the selected size.

Claims 2,4,6-11,13-23,25 are allowed because of their dependency status from claim 1.

Regarding claim 32 the prior art of record neither teaches nor suggests the light emitting device with all the limitations as claimed and particularly the phosphor composition consisting of a first type of phosphor consisting of  $\text{ZnS: Mn}^{2+}$  and a second type of particles.

***Response to Arguments***

Applicant's arguments filed April 19, 2007 regarding claim 33 have been fully considered but they are not persuasive.

In response to applicant's argument that there is no proper motivation for combining Lowery and Takagi the Examiner respectfully disagrees. Lowery discloses

the light emitting device with all the limitations except for the driving circuit for operating the diode in at least one of pulsed and continuous mode. Takagi clearly discloses the driving circuit drives the diode in pulse mode for converting the electrical signal to optical signal. It is very well known in the art that laser diodes operates with a driving circuit converting the electrical signal to optical signal. Furthermore the Examiner also points out that the applicant has not disclosed (Specification page 9 lines 20-25) any reasoning for driving the diode in one of pulsed or continuous mode.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). The Examiner thus asserts that obviousness rejection of claim 33 with combination of Takagi and Lowery stands and is proper.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent 5,734,668 to Raven et al. discloses driving circuit for operating a laser diode in pulsed mode.

**Contact Information**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sikha Roy whose telephone number is (571) 272-2463. The examiner can normally be reached on Monday-Friday 8:00 a.m. – 4:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar D. Patel can be reached on (571) 272-2457. The fax phone number for the organization is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

*Sikha Roy*

Sikha Roy  
Primary Examiner  
Art Unit 2879